



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

DATE: [SEP 20 2017

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Solutia, Inc., W.G. Krummrich Plant, Sauget, IL

FROM: Sarah Clark, Environmental Engineer
AECAB (IL/IN)

THRU: Nathan Frank, Section Chief
AECAB (IL/IN)

TO: File

BASIC INFORMATION

Facility Name: Solutia, Inc., W.G. Krummrich Plant

Facility Location: 500 Monsanto Avenue, Sauget, Illinois, 62206

Date of Inspection: July 26, 2017

EPA Inspectors:

1. Sarah Clark, Environmental Engineer
2. Victoria Nelson, Environmental Engineer
3. Kenneth Ruffatto, Environmental Engineer

Other Attendees

1. Mark D. Grisham, HSES Manager, Solutia
2. Steven Clark, Operations Manager, Solutia
3. Jim Watt, Area Manager for Hydrogenations (Flexsys) process, Solutia
4. Mark Shalabi, Area Manager for OxyChem process, Solutia

Purpose of Inspection: Assess this facility's compliance with the Clean Air Act.

Facility Type: Chemical Manufacturing Plant

Arrival Time: 9:40 AM

Departure Time: 12:41 PM

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Credentials Presented
- ☒ CBI warning to facility provided

The following information was obtained verbally from Solutia staff unless otherwise noted. According to Mr. Grisham, he was filling in for the environmental engineer, Donn Haines, who was out during the week of our inspection.

Company Ownership: In 2012, Solutia merged with and became a subsidiary of Eastman Chemical Group (Eastman). Previously, Solutia acquired Flexsys in 2007.

Process Description:

There are three separate processes on site that produce the following compounds: chlorine, phosphorous pentasulfide, and rubber chemicals. The assets of the first two processes are owned and operated by Eastman, but the raw materials and products are owned by Occidental Chemical Corporation (OxyChem) and Israeli Chemical Limited (ICL) respectively. The third process, which goes by the brand name Flexsys, consists primarily of the high-pressure hydrogenation of methyl isobutyl ketone, and is owned entirely by Eastman. The OxyChem process is enclosed and utilizes a stripper and three scrubbers. The ICL process is also enclosed and operates under an inert nitrogen gas atmosphere. For the Flexsys process, air emissions are controlled by a stripper and a thermal oxidizer (TO), as well as four carbon adsorbers that act as primary and secondary filters for the hydrogen and nitrogen vent lines.

Staff Interview: This Solutia facility operates 24/7 over 3 shifts and employs approximately 140 people. There are typically two planned shutdowns per year: in the late spring and early fall. The facility sends its wastewater, without any pretreatment, to the Joint American Bottoms treatment facility. There are significant groundwater remediation activities on site for benzene, chlorobenzene, and polychlorinated biphenyl (PCB) contamination caused by previous owners.

According to Mr. Watt, the Flexsys TO was installed in 2008, has never been stack tested, and undergoes yearly preventative maintenance, with bi-yearly inspections conducted by a third party. The TO is equipped with a temperature monitor which signals an alarm if the temperature falls out of range. The four carbon adsorbers are continuously monitored and replaced as needed by a third party.

According to the staff, on January 17, 2017, the Flexsys process experienced a malfunction when a high-pressure rupture disk burst at a lower pressure than designed, purportedly due to material fatigue. The staff outlined the immediate actions taken to minimize safety and environmental impacts, such as cooling down and stopping the reaction and moving the materials to another tank. The staff installed a new rupture disk on January 22, measured no leaks on January 24, and

reported the incident and the estimated 1.1 tons of ketone released to IEPA via a letter on February 9.

Mr. Watt also described a recent leak, that was identified at the Flexsys process on January 31 2017, and corrected on February 1, as de minimis. According to Mr. Watt, there is a T-intersection of pipes where stripper bottoms are either directed to the sewer (i.e. the Joint American Bottoms treatment facility) or back to the stripper feed tank, depending on which valve is open. The valve that led to the stripper feed tank had become twisted and frozen in a partially open position, even when sensors indicated that the valve was closed. When wastewater directed to the sewers flowed past the partially open valve, this pulled vacuum on the line to the scrubber feed tank, and effectively pumped stripper feed tank wastewater, contaminated with untreated methyl isobutyl ketone, to the sewer. Mr. Watt informed us that Solutia provided Joint American Bottoms with a written report on February 3, 2017 and has taken additional actions to prevent this incident from reoccurring.

TOUR INFORMATION

EPA toured the facility: Yes

Data Collected and Observations:

We toured the 120-acre site by car, stepping out to observe the TO operation at the Flexsys process. We made olfactory, visual, and auditory (OVA) observations and scanned much of the equipment with an FTIR camera. We noted a chlorine smell at OxyChem process; otherwise, we did not detect any potential leaks. We noted that the TO was operating at 1213 °F.

Photos and/or Videos: were not taken during the inspection.

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

Requested documents:

- Latest stack test results
- Name of carbon absorbers vendor for the Flexsys process
- Annual Emissions Report for 2016
- Copy of Malfunction Reports sent to IEPA for the past 3 years
- Copy of LDAR database via Microsoft Access
- Emissions calculations from rupture

SIGNATURES

Report Author: Sarah Clark Date: 9/13/2017

Section Chief: [Signature] Date: 9/20/17